

SODIUM ALGINATE (FOOD GRADE)

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

SODIUM ALGINATE (FOOD GRADE)
Algin; Sodium polymannuronate; Sodium salt of alginic acid; INS 401
CAS: 9005-38-3

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Food thickener, stabiliser and gelling agent (INS 401); pharmaceutical excipient (tablet binder/disintegrant, wound dressing component); textile printing thickener; industrial sizing and film-forming agent. For industrial/commercial user only.
Uses advised against: All uses not specified in this section or in section 7.3. Use beyond permitted food-additive limits laid down under applicable food safety regulations.

1.3 Supplier's details:

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Based on available data, sodium alginate does not meet the criteria for classification as hazardous. It is a naturally derived polysaccharide extracted from brown seaweed.

Not classified as hazardous under GHS criteria (based on available data).

Note: fine powder may cause transient mechanical irritation of the eyes or respiratory tract; this does not constitute a GHS hazard classification – see section 11.

2.2 GHS label elements, including precautionary statements:

GHS: No signal word required

Hazard statements:

None (not classified).

Precautionary statements:

P264: Wash hands thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area when handling large quantities of powder.
P280: Wear protective gloves/eye protection when handling bulk powder.
P304+P340: IF INHALED (dust): Remove person to fresh air and keep comfortable for breathing.
P501: Dispose of contents/container in accordance with local regulations.

2.3 Other hazards which do not result in classification:

Fine powder dispersed in air may present a combustible dust hazard in the presence of an ignition source (see section 10.4). Powder is highly water-absorbent and becomes very slippery when wetted. Not a PBT or vPvB substance.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Sodium Alginate, Food Grade (sodium salt of alginic acid, a linear polysaccharide of D-mannuronic and L-guluronic acid residues)
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 9005-38-3	Sodium Alginate — Not classified	≥90% (food grade, typical; balance moisture and residual minerals)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Not expected to cause harm under normal conditions of use; the measures below are precautionary.

By inhalation:

If dust is inhaled and irritation occurs, remove the person to fresh air and keep at rest. Seek medical advice if discomfort persists.

By skin contact:

Wash skin with soap and water. Seek medical advice if irritation persists (unlikely).

By eye contact:

Rinse immediately with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. If irritation persists, consult a doctor. Note: powder swells and becomes gel-like on contact with moisture, which can aid or complicate removal – continue flushing thoroughly.

By ingestion:

Rinse mouth with water. Not expected to require specific treatment given the product's use as a food ingredient; seek medical advice if large quantities are swallowed accidentally.

4.2 Most important symptoms/effects, acute and delayed:

No significant adverse effects expected under normal conditions of use. Dust may cause mechanical irritation. See section 11.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

Not relevant

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

Suitable: Water spray/fog, foam, dry chemical powder, carbon dioxide (CO₂).
Unsuitable: High-pressure water/air jet that may disperse dust and create a dust cloud.

5.2 Specific hazards arising from the chemical:

Combustible organic solid. Finely divided powder dispersed in air may form an explosible dust cloud in the presence of an ignition source. Thermal decomposition at high temperature may release carbon monoxide and carbon dioxide.

5.3 Special protective actions for fire-fighters:

Evacuate non-essential personnel. Wear self-contained breathing apparatus and full protective clothing in case of fire. Avoid raising dust. Cool fire-exposed containers with water spray.

Additional provisions:

Contain fire-fighting water run-off; note that wetted material becomes a slippery gel, creating a slip hazard during clean-up.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Avoid generating dust. Spilled powder becomes very slippery when wetted – take care underfoot. Use PPE described in section 8. Ventilate the area.

For emergency responders:

Wear appropriate PPE as per section 8. No special precautions beyond good industrial hygiene practice are required.

6.2 Environmental precautions:

Prevent large quantities from entering drains or watercourses, where it may significantly increase viscosity/turbidity of water. Not expected to pose a significant environmental hazard in small spills.

6.3 Methods and materials for containment and cleaning up:

Sweep or vacuum (dry) and place in a suitable, labelled container for recovery or disposal before the spill is wetted, as wetted alginate becomes a difficult-to-remove slippery gel. If wetted, flush with copious water and squeegee, taking care of the slip hazard.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A. General precautions for safe use:

Avoid generating and inhaling dust. Use local exhaust ventilation where dust may be generated. Keep containers tightly closed and protected from moisture, as the product is highly hygroscopic and will absorb atmospheric moisture, clump and eventually gel.

B. Technical recommendations for the prevention of fires and explosions:

Control dust accumulation; use appropriately rated electrical equipment where dust clouds may form. Avoid ignition sources near powder-handling operations.

C. Technical recommendations on general occupational hygiene:

Do not eat, drink or smoke while handling. Wash hands after handling.

D. Technical recommendations to prevent environmental risks:

Avoid release to the environment in bulk quantities, as the product can significantly alter the viscosity of receiving waters.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Minimum Temp.	Ambient
Maximum Temp.	30°C
Maximum time	24 Months (unopened packaging, typical; keep dry)

B. General conditions for storage:

Store in tightly closed original containers in a cool, dry, well-ventilated place away from moisture, direct sunlight and strong oxidisers. Protect from humidity to prevent caking/gelling. For additional information see subsection 10.5.

7.3 Specific end use(s):

Used as a food, pharmaceutical and industrial thickener/stabiliser/gelling agent. Except for the instructions already specified, no special recommendation is required.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

No specific occupational exposure limit (OEL) has been established for sodium alginate under the Factories Act, 1948 (as amended). A general particulate (inhalable dust, not otherwise classified) limit is recommended as good practice.

Identification	Occupational Exposure Limit Type	Value
Sodium Alginate CAS: 9005-38-3	Particulates (not otherwise classified), TWA (8 hrs) – good-practice guidance	10 mg/m ³

8.2 Appropriate engineering controls:

Use local exhaust ventilation/dust extraction where powder is handled in bulk to keep airborne concentrations below recommended limits.

B. Respiratory protection:

Not normally required with adequate ventilation. For dusty operations, use a particulate filtering half-mask (FFP1/FFP2 type).

C. Specific protection for the hands:

Protective gloves recommended for prolonged or repeated handling, particularly where contact with wetted/gelled material is likely.

D. Eye and face protection:

Safety glasses or goggles when handling bulk powder, especially where dust may be generated.

E. Bodily protection:

Standard industrial workwear; non-slip footwear recommended where wetted alginate may be present on floors.

F. Additional emergency measures:

Eyewash station and washing facilities should be available in the work area.

Environmental exposure controls:

Avoid large-scale release to the environment. See subsection 7.1.D.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

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Appearance	
Physical state at 20°C	Solid (fine powder or granules)
Appearance	Free-flowing fibrous or granular powder
Color	White to pale yellowish-brown
Odor	Odorless to faint, characteristic of marine origin
Odour threshold	Not established
Volatility	
Boiling point at atmospheric pressure	Not applicable (decomposes on heating; does not boil)
Vapour pressure at 20°C / 50°C	Negligible
Evaporation rate at 20°C	Not relevant (solid)
Product Description	
Density / Relative density at 20°C	~1.6 g/cm³ (true particle density, typical)
Bulk density	Typical value – refer to current specification sheet (~0.6–0.9 g/cm³, grade dependent)
Concentration	≥90% (food grade, typical)
pH	~6.0–8.0 (1% aqueous solution)
Vapour density at 20°C	Not relevant
Partition coefficient n-octanol/water 20°C	Not relevant (ionic polymer)
Solubility in water at 20°C	Soluble (forms a viscous colloidal solution/gel); insoluble in organic solvents
Decomposition temperature	>250°C (chars/decomposes)
Melting point/freezing point	Not applicable (decomposes before melting)
Flammability	
Flash Point	Non-applicable (solid)
Flammability (solid, gas)	Combustible solid; not self-igniting under normal conditions
Autoignition temperature	Typical value – refer to current specification sheet
Lower / Upper flammability limit	Not established for this product
Particle Characteristics	
Median equivalent diameter	Typical value – refer to current specification sheet

9.2 Other information:

Explosive properties	Not explosive; combustible dust precautions apply (see 10.4)
Oxidising properties	Not oxidising
Corrosive to metals	Not corrosive to metals
Heat of combustion	Typical value – refer to current specification sheet
Surface tension at 20°C	Not relevant (solid)
Refraction index	Not relevant (solid)

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:
Stable under normal conditions of use and storage. Hygroscopic – absorbs atmospheric moisture, which can lead to caking and eventual gel formation. Incompatible with strong acids (precipitates alginic acid) and divalent cations such as calcium (forms insoluble gels).

10.2 Chemical stability:
Chemically stable under the indicated conditions of storage, handling and use when kept dry.

10.3 Possibility of hazardous reactions:
Under the specified conditions, hazardous reactions are not expected.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Avoid high temperatures; avoid dust cloud near ignition sources	Avoid prolonged direct exposure	Keep dry; avoid caking/gelling

10.5 Incompatible materials:

Strong Acids	Divalent/Trivalent Cations (Ca, Al)	Water (bulk powder)	Strong Oxidisers	Ignition Sources
Avoid contact (precipitation)	Avoid contact (gel formation)	Keep dry to prevent caking	Avoid contact	Keep away from powder clouds

10.6 Hazardous decomposition products:
Thermal decomposition at high temperature may release carbon monoxide and carbon dioxide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:
Sodium alginate has a very low order of toxicity and is widely used as a food additive (INS 401) and pharmaceutical excipient, including in wound dressings and oral formulations.

- A. Ingestion (acute effect):**
Practically non-toxic. Consumption of large amounts may have a mild laxative effect due to its bulking/fibre-like action.
- B. Inhalation (acute effect):**
Dust may cause mechanical irritation of the respiratory tract. Not expected to be acutely toxic by inhalation.
- C. Contact with skin and eyes (acute effect):**
Not expected to be irritating under normal conditions of use; may cause mild, transient mechanical irritation from dust contact.
- D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):**
Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data. IARC: Not listed.
- E. Sensitizing effects:**
Classification criteria for respiratory or skin sensitisation are not met based on available data.
- F. Specific target organ toxicity (STOT) – single exposure:**

Classification criteria are not met based on available data.

G. Specific target organ toxicity (STOT) – repeated exposure:

Classification criteria are not met based on available data.

H. Aspiration hazard:

Non-applicable (solid).

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Sodium Alginate CAS: 9005-38-3	LD50 oral: >5000 mg/kg (practically non-toxic)	Rat
	LD50 dermal: >2000 mg/kg	Rabbit

SECTION 12: ECOLOGICAL INFORMATION

Not expected to be hazardous to the aquatic environment; a naturally occurring marine polysaccharide.

12.1 Toxicity:

Acute Toxicity	Species	Genus
Not expected to be toxic (low hazard, natural polysaccharide)	Non-applicable	Fish
Not expected to be toxic (low hazard, natural polysaccharide)	Non-applicable	Crustacean

12.2 Persistence and degradability:

Expected to be biodegradable, being a naturally occurring marine polysaccharide.

12.3 Bioaccumulative potential:

Not expected to bioaccumulate (high molecular weight, water-soluble polymer).

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Not relevant (ionic polymer)	Not relevant	Low mobility	Low mobility (gels in situ)

12.5 Results of PBT and vPvB assessment:

Does not meet PBT/vPvB criteria.

12.6 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Dispose of in accordance with local, state and national regulations. Small quantities may be disposed of as general/organic waste where permitted. Avoid discharging large quantities of gelled material to drains, as it may cause blockages. Empty containers may retain product residue – handle accordingly.
Refer to national and local regulations on waste management.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

14.1 UN number	Not regulated as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9; keep dry during transport
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22):

14.1 UN number	Not regulated as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	Keep dry during transport
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024):

14.1 UN number	Not regulated as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Keep dry during transport
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances. Where used as a food additive, compliance with FSSAI permitted limits for INS 401 applies.

Other legislation:

Food Safety and Standards Act, 2006 and Rules/Regulations made thereunder (for food-grade use)
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 (not applicable – product not classified as hazardous)

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

Not classified – no hazard statements apply to this product.

Advice related to training:

Minimal training is recommended to familiarise staff handling this product with good industrial hygiene practice, dust control and the contents of this safety data sheet.

Principal bibliographical sources:

Published GHS classification references and standard commercial/regulatory SDS databases for Sodium Alginate, CAS 9005-38-3.

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET